

Flexible High Energy-Conversion Sensing Materials for Structural Health Monitoring, Phase I

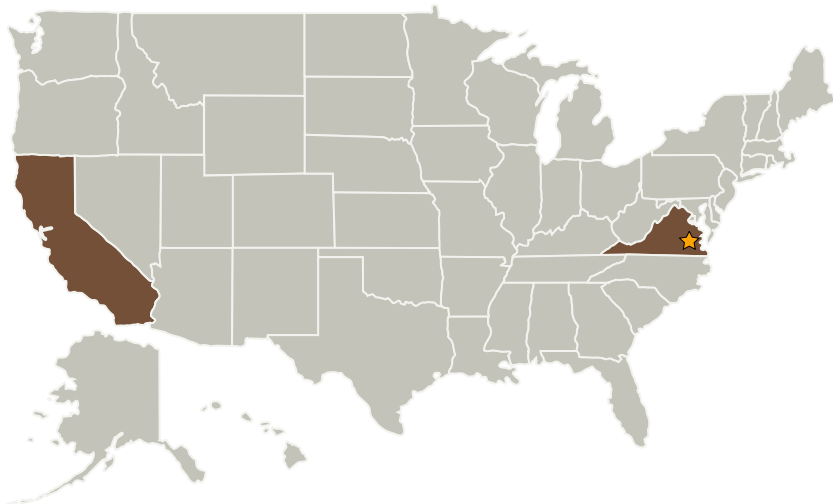
Completed Technology Project (2009 - 2009)



Project Introduction

The applicant is developing flexible highly-efficient piezoelectric materials for use in structural health monitoring (SHM) as contemplated in the solicitation topic. Phase I will demonstrate and verify the superior properties and sensing performance of these innovative materials, utilizing commercially available piezoelectric materials as a baseline for comparison. The proposed materials may have widespread application for sensing and monitoring vehicle and structure vibration and strain loading. The specific solution proposed by the applicant simultaneously solves several problems common to SHM systems, including the ability to easily realize distributed sensing networks; reduction or elimination of additional wiring and electrical power; minimal increase in vehicle or structure weight. Phase I will focus on the characterization and demonstration of the new sensing materials as they represent the primary technical innovation. Phase II would expand the project to a complete SHM system, combining the sensing materials developed in Phase I with data collection and reduction algorithms.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
SmartWear, LLC	Supporting Organization	Industry	Santa Monica, California

Primary U.S. Work Locations

California	Virginia
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines